The following Listing of the Claims will replace all prior versions and all prior listings of the claims in the present application:

1. (Currently Amended) A biocompatible drug release matrix for a medical device comprising:

a biocompatible polymer matrix; and

a drug incorporated into the biocompatible polymer matrix,

wherein the biocompatible polymer matrix is co-solubilized with the drug in a solvent to form a solution wherein the drug forms a plurality of small particles in the solution and the solvent is evaporated from the solution.

2. (Original) The biocompatible drug release matrix of claim 1 wherein the drug has antibiotic properties and anti-proliferative properties.

3. (Original) The biocompatible drug release matrix of claim 1 wherein the drug is an analogue related to the quinone-containing alkylating agents of a mitomycin family.

4. (Original) The biocompatible drug release matrix of claim 1 wherein the drug is mitomycin C.

5. (Original) The biocompatible drug release matrix of claim 1 wherein a ratio of the weight of the biocompatible polymer matrix and the drug is about 4 to about 1.

6. (Original) The biocompatible drug release matrix of claim 1 wherein the solvent is selected from the group consisting of water, saline, tetrahydrofuran, methanol, acetone, butyl acetate, cyclohexane, carbon tetrachloride, ether, chloroform, benzene, ethanol, toluene, dimethyl sulfoxide, petroleum ethers, other hydrocarbons and other organic solvents.

7. (Original) The biocompatible drug release matrix of claim 1 wherein the biocompatible polymer matrix comprises polyvinyl pyrrolidone with an at least one isocyanate.

8. (Original) The biocompatible drug release matrix of claim 1 wherein the biocompatible polymer matrix comprises a mixture of hydrophilic and hydrophobic polymers selected from the group consisting of polyurethanes, polyvinyl pyrrolidone, poly methyl methracrylate (PMMA), hydroxyetyl methacrylate and cellulose esters.

9. (Original) The biocompatible drug release matrix of claim 1 wherein the biocompatible polymer matrix comprises an erodible polymer.

10. (Original) The biocompatible drug release matrix of claim 9 wherein the erodible polymer is selected from the group consisting of polyactide, polyactide with glycolide, polyester-amides, polyurethanes, poly(ethylene-urethane), poly(ester-urethane) and poly(ether-

polyester-urethane), amino-acid based polyurethanes, polycaprolactone based polyurethanes, polyurethanes synthesized from poly(butylene succinate) polyol, poly(ethylene glycol), and 4,4'-methylenebis(cyclohexyl isocyanate), fat, carbohydrates and protein compounds.

11. (Original) The biocompatible drug release matrix of claim 1 wherein the biocompatible polymer matrix comprises parylene and derivatives of parylene.

12. (Original) The biocompatible drug release matrix of claim 1 wherein the biocompatible polymer matrix comprises polybutylmethacrylate and polyethylenevinylacetate.

13. (Original) The biocompatible drug release matrix of claim 12 wherein the concentrations of polybutylmethacrylate and polyethylenevinylacetate are approximately equal.

14. (Original) The biocompatible drug release matrix of claim 1 wherein the biocompatible polymer matrix comprises a thermoplastic polyurethane elastomer.

15. (Original) The biocompatible drug release matrix of claim 1 wherein the biocompatible polymer matrix is selected from the group consisting of hybrid polymers, composites and polymer blends, acrylate terpolymers, tri-block polymers, polyethylene vinyl-acetate methacrylic tri-block terpolymer, ethyl-vinyl acetate, polyethyl vinyl-acetate, polybutyl methacrylic acid and polyethyl vinyl-acetate blends, polyurethanes and polyurethane-polycarbonate blends, silicone-urethane copolymers, polyvinyl pyrrolidone, polyester resins and parylene.

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78. (Currently Amended) A biocompatible drug release matrix for a medical device comprising:

a biocompatible drug eluting matrix; and

a drug incorporated into the biocompatible drug eluting matrix,

wherein the drug is an analogue related to the quinone-containing alkylating agents of a mitomycin family and wherein the drug forms a plurality of small particles in a solution.

79. (Original) The biocompatible drug release matrix of claim 78 wherein the drug is mitomycin C.

80. (Original) The biocompatible drug release matrix of claim 78 wherein the biocompatible drug eluting matrix releases the drug at a rate sufficient to maintain tissue level concentrations of the drug from about 0.01 micrograms per milliliter to about 25 micrograms per milliliter of the surrounding tissue for at least two weeks after implantation of the medical device.

81. (Original) The biocompatible drug release matrix of claim 78 wherein the biocompatible drug eluting matrix has a concentration of the drug between about 0.1 micrograms and

about 101 micrograms per millimeter of medical device length.

82. (Original) The biocompatible drug release matrix of claim 78 wherein the biocompatible drug eluting matrix has a concentration of the drug between about 0.02 $\mu g/mm^2$ and about 2.5 $\mu g/mm^2$ per medical device surface area.

83. (Original) The biocompatible drug release matrix of claim 78 wherein the medical device is coated with a total dosage of about 10 micrograms of the drug per millimeter length of the medical device.

84. (Original) The biocompatible drug release matrix of claim 78 wherein the medical device is coated with a total dosage of about 0.5 micrograms to about 50 micrograms of the drug per millimeter length of the medical device.

85. (Original) The biocompatible drug release matrix of claim 78 wherein an initial dose of between about 10 percent to about 60 percent of the drug is delivered to the tissue in the first few days after implantation of the medical device.

86. (Original) The biocompatible drug release matrix of claim 78 wherein at least a portion of a remainder of the drug is delivered at a slower rate than an initial dose of the drug.

87. (Original) The biocompatible drug release matrix of claim 78 further comprising a burst control layer to reduce the rate of diffusion of the drug from the biocompatible drug release matrix.

88. (Original) The biocompatible drug release matrix of claim 78 wherein mitomycin C is eluted from the biocompatible drug release matrix at a controlled rate.

89. (Original) The biocompatible drug release matrix of claim 78 wherein the biocompatible drug release matrix is incorporated within a vascular prosthesis.

90. (Original) The biocompatible drug release matrix of claim 78 wherein the biocompatible drug release matrix comprises a coating applied to the surface of a vascular prosthesis.

91. (Original) The biocompatible drug release matrix of claim 78 wherein the biocompatible drug release matrix comprises a film which covers a vascular prosthesis.

92. (Original) The biocompatible drug release matrix of claim 78 wherein the biocompatible drug release matrix is co-solubilized with the drug in a solvent to form a solution and the solvent is evaporated from the solution.

93. (Original) The biocompatible drug release matrix of claim 78 further comprising polyvinyl pyrrolidone with an at least one isocyanate.

94. (Original) The biocompatible drug release matrix of claim 78 further comprising an erodible

polymer.

95. (Original) The biocompatible drug release matrix of claim 78 wherein the erodible polymer is selected from the group consisting of polyactide, polyactide with glycolide, polyester-amides, polyurethanes, poly(ethylene-urethane), poly(ester-urethane) and poly(ether-polyester-urethane), amino-acid based polyurethanes, polycaprolactone based polyurethanes, polyurethanes synthesized from poly(butylene succinate) polyol, poly(ethylene glycol), and 4,4'-methylenebis(cyclohexyl isocyanate), fat, carbohydrates and protein compounds.

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105. (Previously Presented) The biocompatible drug release matrix of claim 1 wherein the drug is linked to a compound to alter the release kinetics, decrease the toxicity or enhance the potency of the drug.

106. (Previously Presented) The biocompatible drug release matrix of claim 1 wherein the biocompatible polymer matrix comprises a plurality of sub-layers.

107. (Previously Presented) The biocompatible drug release matrix of claim 106 wherein the plurality of sub-layers have varying chemical compositions.

108. (Previously Presented) The biocompatible drug release matrix of claim 106 wherein an amount of the drug incorporated into the biocompatible polymer matrix varies from one sub-layer to an adjacent sub-layer.

109. (Previously Presented) The biocompatible drug release matrix of claim 106 wherein an amount of drug incorporated into the biocompatible polymer matrix is approximately the same from one sub-layer to an adjacent sub-layer.

110. (Previously Presented) The biocompatible drug release matrix of claim 106 wherein the plurality of sub-layers have the same chemical composition.

111. (Previously Presented) The biocompatible drug release matrix of claim 1 wherein the biocompatible polymer matrix comprises a single layer.

112. (Canceled)

113. (Currently Amended) A biocompatible drug release matrix comprising:

a biocompatible drug eluting matrix; and

a drug incorporated into the biocompatible drug eluting matrix,

wherein the biocompatible drug eluting matrix is co-solubilized with the drug in a solvent to form a solution wherein the drug forms a plurality of small particles in the solution and the solvent is evaporated from the solution.

114. (Previously Presented) The biocompatible drug release matrix of claim 113 wherein the biocompatible drug eluting matrix comprises a plurality of sub-layers.

115. (Previously Presented) The biocompatible drug release matrix of claim 114 wherein an amount of drug incorporated into the biocompatible drug eluting matrix varies from one sub-layer to an adjacent sub-layer.

116. (Previously Presented) The biocompatible drug release matrix of claim 114 wherein an amount of drug incorporated into the biocompatible drug eluting matrix is approximately the same from one sub-layer to an adjacent sub-layer.

117. (Previously Presented) The biocompatible drug release matrix of claim 113 wherein the biocompatible drug eluting matrix comprises a single layer.

118. (Previously Presented) The biocompatible drug release matrix of claim 113 wherein the drug is linked to a compound to alter the release kinetics, decrease the toxicity or enhance the potency of the drug.

119. (Previously Presented) The biocompatible drug release matrix of claim 113 wherein the biocompatible drug release matrix is applied to a stent.

120. (Previously Presented) The biocompatible drug release matrix of claim 113 wherein the biocompatible drug release matrix is applied to a medical device.

121. (Previously Presented) The biocompatible drug release matrix of claim 120 wherein the biocompatible drug eluting matrix releases the drug at a rate sufficient to maintain tissue level concentrations of the drug from about 0.01 micrograms per milliliter to about 25 micrograms per milliliter of the surrounding tissue for at least two weeks after implantation of the medical device.

122. (Previously Presented) The biocompatible drug release matrix of claim 120 wherein the

biocompatible drug eluting matrix has a concentration of the drug between about 0.1 micrograms and about 101 micrograms per millimeter of medical device length.

123. (Previously Presented) The biocompatible drug release matrix of claim 120 wherein the biocompatible drug eluting matrix has a concentration of the drug between about 0.02 $\mu g/mm^2$ and about 2.5 $\mu g/mm^2$ per medical device surface area.

124. (Previously Presented) The biocompatible drug release matrix of claim 120 wherein an initial dose of between about 10 percent to about 60 percent of the drug is delivered to the tissue in the first few days after implantation of the medical device.

125. (Previously Presented) The biocompatible drug release matrix of claim 113 wherein the drug has antibiotic properties and anti-proliferative properties.

126. (Previously Presented) The biocompatible drug release matrix of claim 113 wherein the drug is an analogue related to the quinone-containing alkylating agents of a mitomycin family.

127. (Previously Presented) The biocompatible drug release matrix of claim 113 wherein a ratio of the weight of the biocompatible drug eluting matrix and the drug is about 4 to about 1.

128. (Previously Presented) The biocompatible drug release matrix of claim 113 wherein the biocompatible drug eluting matrix comprises polyvinyl pyrrolidone with an at least one isocyanate.

129. (Previously Presented) The biocompatible drug release matrix of claim 113 wherein the biocompatible drug eluting matrix comprises a mixture of hydrophilic and hydrophobic polymers selected from the group consisting of polyurethanes, polyvinyl pyrrolidone, poly methyl methracrylate (PMMA), hydroxyetyl methacrylate and cellulose esters.

130. (Previously Presented) The biocompatible drug release matrix of claim 113 wherein the biocompatible drug eluting matrix comprises an erodible polymer.

131. (Previously Presented) The biocompatible drug release matrix of claim 113 wherein the drug is entrapped into a mixture of hydrophilic and hydrophobic polymers of the biocompatible drug eluting matrix.

132. (Previously Presented) The biocompatible drug release matrix of claim 113 further comprising a metallic surface.

133. (Previously Presented) The biocompatible drug release matrix of claim 113 wherein the biocompatible drug eluting matrix comprises polybutylmethacrylate and

polyethylenevinylacetate.

134. (Previously Presented) The biocompatible drug release matrix of claim 113 wherein the drug remains part of the biocompatible drug eluting matrix.

135. (Previously Presented) The biocompatible drug release matrix of claim 113 wherein the biocompatible drug eluting matrix comprises a thermoplastic polyurethane elastomer.

136. (Previously Presented) The biocompatible drug release matrix of claim 113 wherein the biocompatible drug eluting matrix is selected from the group consisting of hybrid polymers, composites and polymer blends, acrylate terpolymers, tri-block polymers, polyethylene vinyl-acetate methacrylic tri-block terpolymer, ethyl-vinyl acetate, polyethyl vinyl-acetate, polybutyl methacrylic acid and polyethyl vinyl-acetate blends, polyurethanes and polyurethane-polycarbonate blends, silicone-urethane copolymers, polyvinyl pyrrolidone, polyester resins and parylene.

137. (Currently Amended) A biocompatible drug release matrix comprising:

a biocompatible polymer matrix; and

a drug suspended within the biocompatible polymer matrix,

wherein the drug is an analogue related to the quinone-containing alkylating agents of a mitomycin family and wherein the drug forms a plurality of small particles in a solution.

138. (Previously Presented) The biocompatible drug release matrix of claim 137 wherein the drug is mitomycin C.

139. (Previously Presented) The biocompatible drug release matrix of claim 137 wherein the biocompatible polymer matrix comprises a plurality of sub-layers.

140. (Previously Presented) The biocompatible drug release matrix of claim 139 wherein an amount of drug suspended within the biocompatible polymer matrix varies from one sub-layer to an adjacent sub-layer.

141. (Previously Presented) The biocompatible drug release matrix of claim 139 wherein an amount of drug suspended within the biocompatible polymer matrix is approximately the same from one sub-layer to an adjacent sub-layer.

142. (Previously Presented) The biocompatible drug release matrix of claim 137 wherein the biocompatible polymer matrix comprises a single layer.

143. (Previously Presented) The biocompatible drug release matrix of claim 137 wherein the biocompatible drug release matrix is applied to a stent.

144. (Previously Presented) The biocompatible drug release matrix of claim 137 wherein the

biocompatible drug release matrix is applied to a medical device.

145. (Previously Presented) The biocompatible drug release matrix of claim 144 wherein the biocompatible polymer matrix releases the drug at a rate sufficient to maintain tissue level concentrations of the drug from about 0.01 micrograms per milliliter to about 25 micrograms per milliliter of the surrounding tissue for at least two weeks after implantation of the medical device.

146. (Previously Presented) The biocompatible drug release matrix of claim 144 wherein the biocompatible polymer matrix has a concentration of the drug between about 0.1 micrograms and about 101 micrograms per millimeter of medical device length.

147. (Previously Presented) The biocompatible drug release matrix of claim 144 wherein the biocompatible polymer matrix has a concentration of the drug between about 0.02 $\mu g/mm^2$ and about 2.5 $\mu g/mm^2$ per medical device surface area.

148. (Previously Presented) The biocompatible drug release matrix of claim 144 wherein an initial dose of between about 10 percent to about 60 percent of the drug is delivered to the tissue in the first few days after implantation of the medical device.

149. (Previously Presented) The biocompatible drug release matrix of claim 137 wherein the drug is linked to a compound to alter the release kinetics, decrease the toxicity or enhance the potency of the drug.

150. (Previously Presented) The biocompatible drug release matrix of claim 137 wherein the drug remains part of the biocompatible drug eluting matrix.

151. (Previously Presented) The biocompatible drug release matrix of claim 137 wherein the drug has antibiotic properties and anti-proliferative properties.

152. (Previously Presented) The biocompatible drug release matrix of claim 137 wherein a ratio of the weight of the biocompatible polymer matrix and the drug is about 4 to about 1.

153. (Previously Presented) The biocompatible drug release matrix of claim 137 wherein the solvent is selected from the group consisting of water, saline, tetrahydrofuran, methanol, acetone, butyl acetate, cyclohexane, carbon tetrachloride, ether, chloroform, benzene, ethanol, toluene, dimethyl sulfoxide, petroleum ethers, other hydrocarbons and other organic solvents.

154. (Previously Presented) The biocompatible drug release matrix of claim 137 further comprising a metallic surface.

155. (Previously Presented) The biocompatible drug release matrix of claim 137 wherein the biocompatible polymer matrix comprises a mixture of hydrophilic and hydrophobic polymers selected from the group consisting of polyurethanes, polyvinyl pyrrolidone, poly methyl methracrylate (PMMA), hydroxyetyl methacrylate and cellulose esters.

156. (Previously Presented) The biocompatible drug release matrix of claim 137 wherein the biocompatible polymer matrix comprises an erodible polymer.

157. (Previously Presented) The biocompatible drug release matrix of claim 137 wherein the biocompatible polymer matrix comprises parylene and derivatives of parylene.

158. (Previously Presented) The biocompatible drug release matrix of claim 137 wherein the biocompatible polymer matrix comprises polybutylmethacrylate and polyethylenevinylacetate.

159. (Previously Presented) The biocompatible drug release matrix of claim 137 wherein the biocompatible polymer matrix comprises a thermoplastic polyurethane elastomer.

160. (Previously Presented) The biocompatible drug release matrix of claim 137 wherein the biocompatible polymer matrix is selected from the group consisting of hybrid polymers, composites and polymer blends, acrylate terpolymers, tri-block polymers, polyethylene vinyl-acetate methacrylic tri-block terpolymer, ethyl-vinyl acetate, polyethyl vinyl-acetate, polybutyl methacrylic acid and polyethyl vinyl-acetate blends, polyurethanes and polyurethane-polycarbonate blends, silicone-urethane copolymers, polyvinyl pyrrolidone, polyester resins and parylene.

161. (Currently Amended) A biocompatible drug release matrix for a medical device comprising:

a biocompatible drug eluting matrix; and

a drug incorporated into the biocompatible drug eluting matrix,

wherein the biocompatible drug eluting matrix is co-solubilized with the drug in a solvent to form a solution <u>wherein the drug forms a plurality of small particles in the solution</u> and the solvent is evaporated from the solution to form a uniform distribution of drug in the biocompatible drug eluting matrix.

162. (Previously Presented) The biocompatible drug release matrix of claim 161 wherein the biocompatible drug eluting matrix comprises a plurality of sub-layers.

163. (Previously Presented) The biocompatible drug release matrix of claim 161 wherein the biocompatible drug eluting matrix comprises a single layer.

164. (Previously Presented) The biocompatible drug release matrix of claim 161 wherein the drug is linked to a compound to alter the release kinetics, decrease the toxicity or enhance the potency of the drug.

165. (Previously Presented) The biocompatible drug release matrix of claim 161 wherein the drug has antibiotic properties and anti-proliferative properties.

166. (Previously Presented) The biocompatible drug release matrix of claim 161 wherein the drug is an analogue related to the quinone-containing alkylating agents of a mitomycin family.

167. (Previously Presented) The biocompatible drug release matrix of claim 161 wherein the biocompatible drug eluting matrix releases the drug at a rate sufficient to maintain tissue level concentrations of the drug from about 0.01 micrograms per milliliter to about 25 micrograms per milliliter of the surrounding tissue for at least two weeks after implantation of the medical device.

168. (Previously Presented) The biocompatible drug release matrix of claim 161 wherein the biocompatible drug eluting matrix has a concentration of the drug between about 0.1 micrograms and about 101 micrograms per millimeter of medical device length.

169. (Previously Presented) The biocompatible drug release matrix of claim 161 wherein the biocompatible drug eluting matrix has a concentration of the drug between about 0.02 $\mu g/mm^2$ and about 2.5 $\mu g/mm^2$ per medical device surface area.

170. (Previously Presented) The biocompatible drug release matrix of claim 161 wherein an initial dose of between about 10 percent to about 60 percent of the drug is delivered to the tissue in the first few days after implantation of the medical device.

172. (Currently Amended) A biocompatible drug release matrix for a medical device comprising:

a biocompatible polymer matrix; and

a drug suspended within the biocompatible polymer matrix,

wherein the biocompatible drug eluting matrix is co-solubilized with the drug in a solvent to form a solution <u>wherein the drug forms a plurality of small particles in the solution</u> and the solvent is evaporated from the solution to form a uniform distribution of drug in the biocompatible polymer matrix.

173. (Previously Presented) The biocompatible drug release matrix of claim 172 wherein the drug is an analogue related to the quinone-containing alkylating agents of a mitomycin family.

174. (Previously Presented) The biocompatible drug release matrix of claim 172 wherein the biocompatible polymer matrix releases the drug at a rate sufficient to maintain tissue level concentrations of the drug from about 0.01 micrograms per milliliter to about 25 micrograms per milliliter of the surrounding tissue for at least two weeks after implantation of the medical device.

175. (Previously Presented) The biocompatible drug release matrix of claim 172 wherein the biocompatible drug eluting matrix has a concentration of the drug between about 0.1 micrograms and about 101 micrograms per millimeter of medical device length.